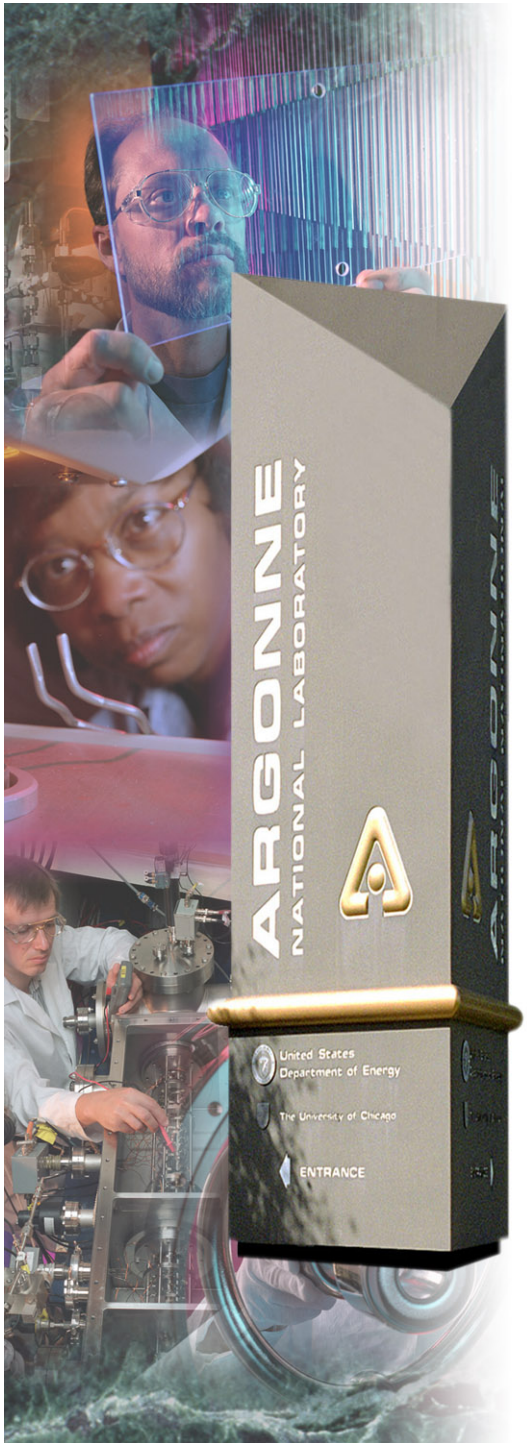


IPNS Recycles Target and Reduces Costs

Richard Vitt
Intense Pulsed Neutron Source Division

DOE Pollution Prevention Tele-Video Conference
May 2004

Argonne National Laboratory

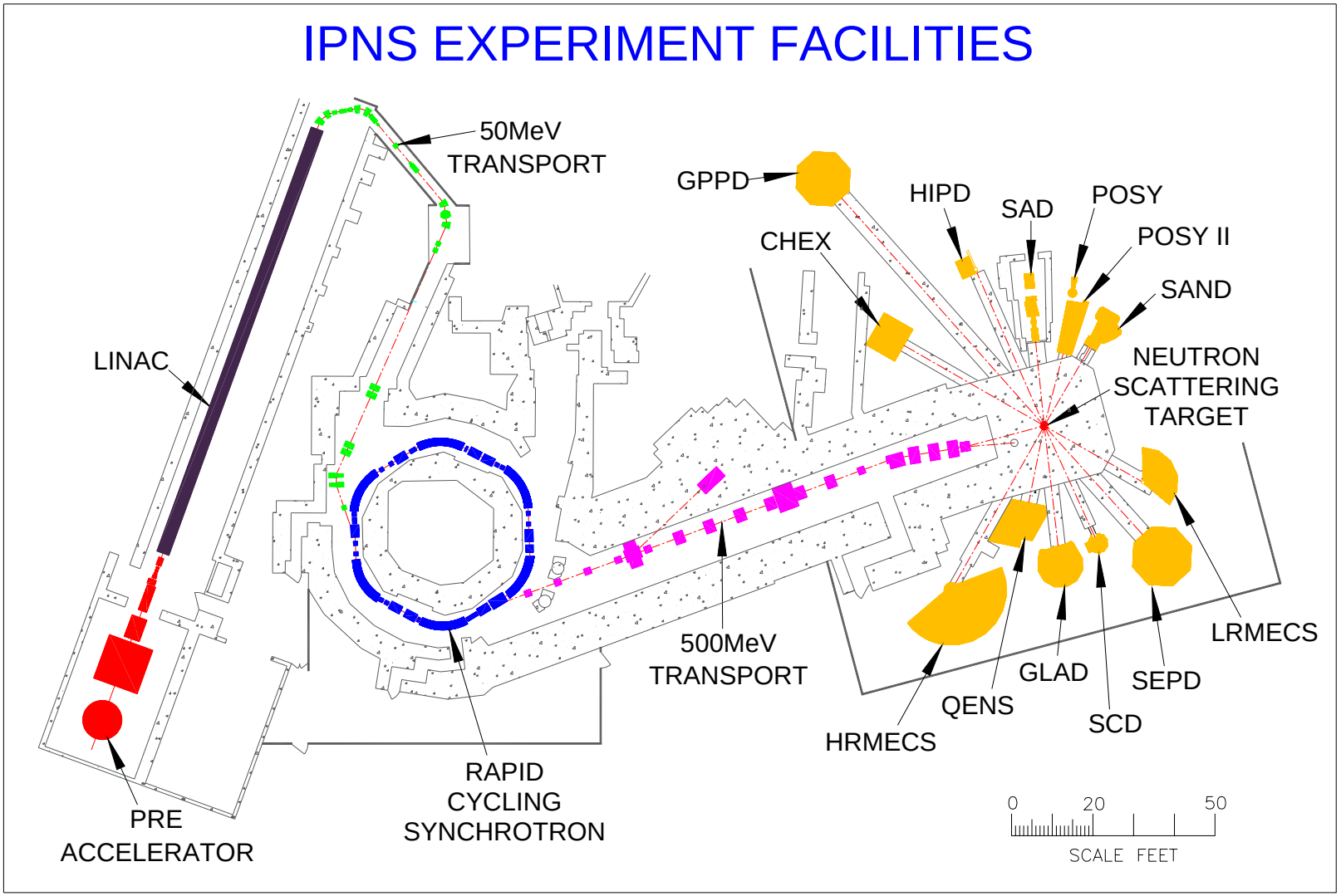
Office of Science
U.S. Department of Energy

A U.S. Department of Energy
Office of Science Laboratory
Operated by The University of Chicago

Intense Pulsed Neutron Source

- **Facility for condensed matter research using neutron scattering**
- **DOE's first facility dedicated to users**
- **Commissioned in 1981**
- **Hosts 250 - 300 users/year performing 400 experiments during 26 weeks of operation**

Intense Pulsed Neutron Source

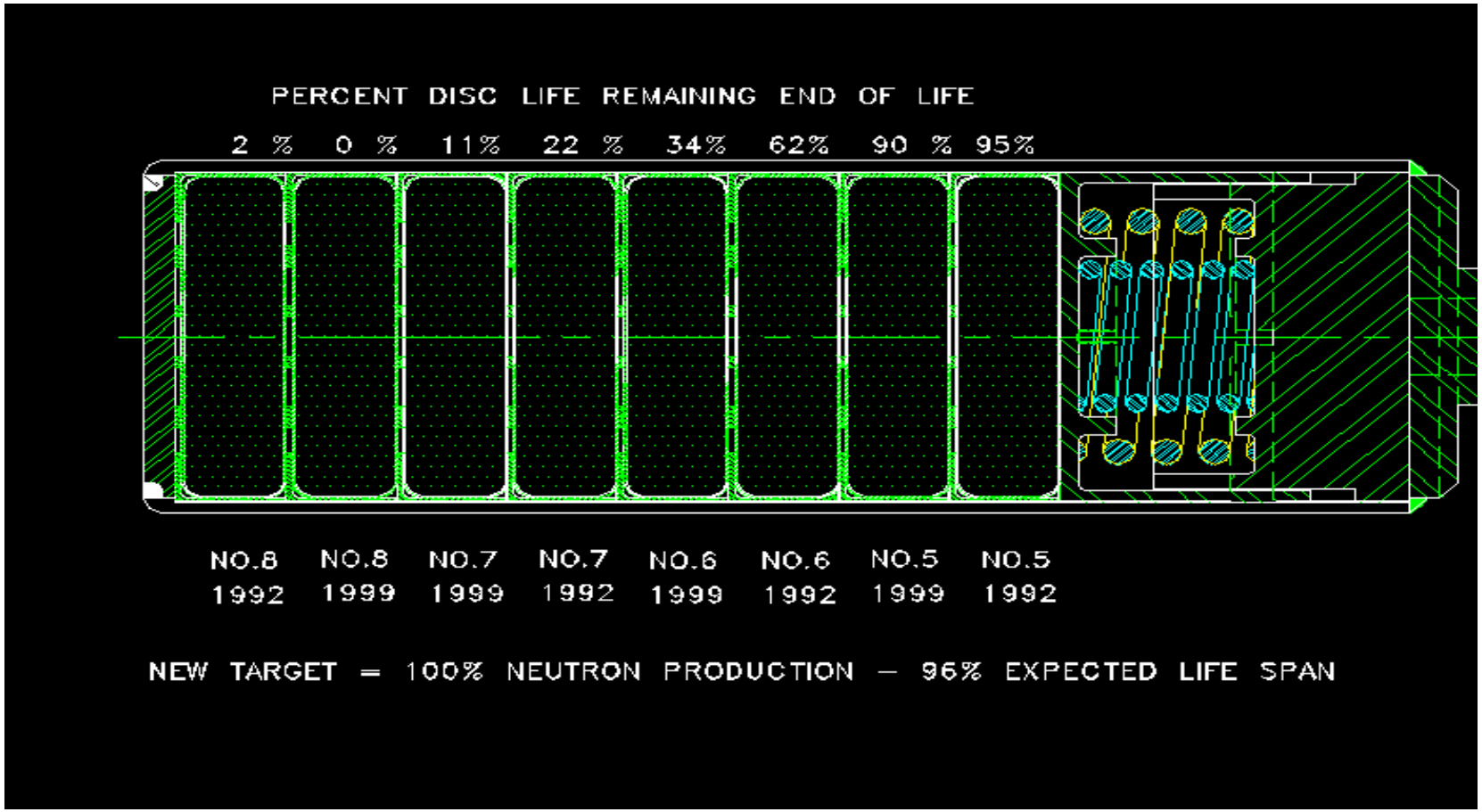


Depleted Target Assembly

- **Eight Zirconium clad depleted Uranium target disks per target**
- **Original inventory of 32 target disks**
- **Target life approximately 3-4 years**
- **In 2002, inventory was down to installed target plus one spare**
- **Estimates on fabricating new target disks over $1 million**

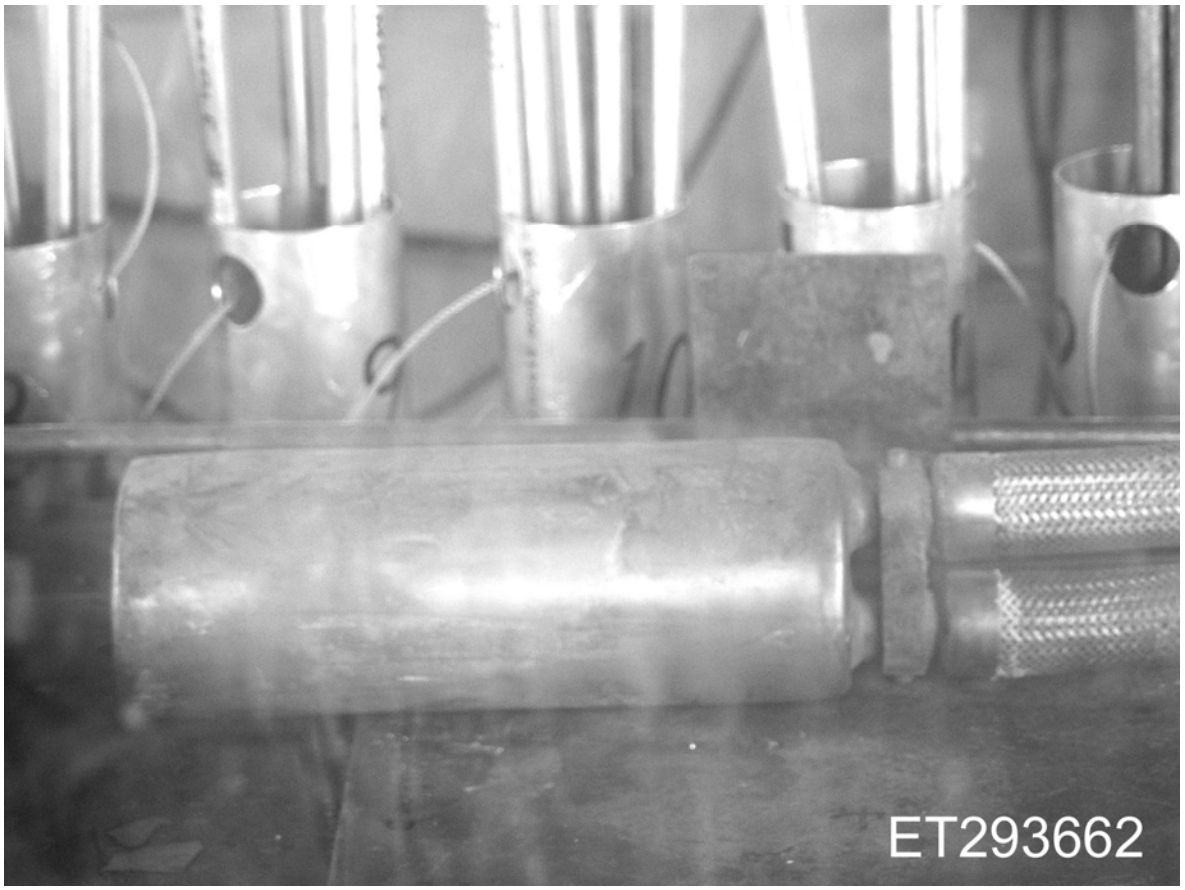
Recycled Target Disks – Target Disk Options

Schematic Diagram of IPNS Target



Recycled Target Disks – Retrieving Used Disks

Failed target ready for disassembly



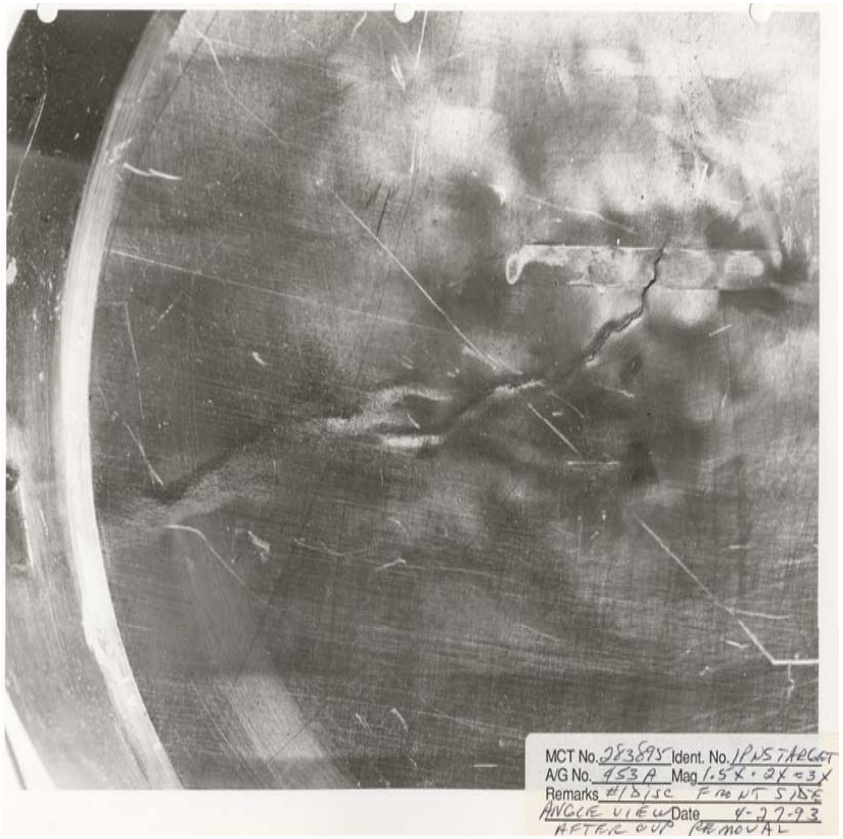
Recycled Target Disks – Assembling Target

Argonne National Laboratory
CMT Hot Cell Facility

Target Disk Comparison

New disk assembly

Disk with failed cladding



Recycled Target Disks – Conclusion

- **Recycling used target disks saved several hundred thousand dollars**
- **WMO disposal costs were lowered**
- **No reduction in neutron flux – target performs as new**
- **IPNS User Program benefits through assured operation**